

CLAIMS

What is claimed is:

1. A semiconductor device, comprising:
a first semiconductor package in which a first semiconductor chip is mounted; and
a second semiconductor package that is supported on the first semiconductor package such that ends of the second semiconductor package are arranged above the first semiconductor chip.
2. The semiconductor device according to claim 1, further comprising a third semiconductor package that is supported on the first semiconductor package such that ends of the third semiconductor are arranged above the first semiconductor chip.
3. The semiconductor device according to claim 2, wherein the second semiconductor package and the third semiconductor package are separated from each other.
4. The semiconductor device according to claim 2, wherein at least one of a size, thickness and material is different between the second semiconductor package and the third semiconductor package.
5. The semiconductor device according to claim 3, wherein at least one gap selected from the group including:

a gap between the second semiconductor package and the third semiconductor package;

a gap between the first semiconductor package and the second semiconductor package; and

a gap between the first semiconductor package and the third semiconductor package;

is filled with resin.

6. The semiconductor device according to claim 1, wherein:

the first semiconductor package further comprises:

a first carrier substrate in which a first semiconductor chip is flip-chip mounted; and

the second semiconductor package further comprises:

a second semiconductor chip;

a second carrier substrate in which the second semiconductor chip is mounted;

protruding electrodes which are bonded onto the first carrier substrate and holds the second carrier substrate above the first semiconductor chip; and

a sealing agent, which seals the second semiconductor chip.

7. The semiconductor device according to claim 6, wherein the first semiconductor packages is a ball grid array in which the first semiconductor chip is flip-chip mounted on the first carrier package, and the second

semiconductor package is one of a ball grid array and a chip-size package in which the second semiconductor chip mounted on the second carrier substrate is sealed with a mold.

8. The semiconductor device according to claim 6, wherein the protruding electrodes are arranged at least at four corners of the second carrier substrate, and are excluded from a mounting region of the first semiconductor chip.

9. The semiconductor device according to claim 6, wherein the first semiconductor chip is a logic-processing element, and the second semiconductor chip is a memory element.

10. A semiconductor device, comprising:
a first semiconductor package in which a first semiconductor chip is mounted; and

a second semiconductor chip that is supported on the first semiconductor package such that ends of the second semiconductor are arranged above the first semiconductor chip.

11. The semiconductor device according to claim 10, wherein the second semiconductor chip includes a three-dimensional mounting structure.

12. An electronic device, comprising:

a first package in which an electronic component is mounted; and
a second package that is supported on the first package such that ends of the second package are arranged above the electronic component.

13. Electronic equipment, comprising:

a first semiconductor package in which a semiconductor chip is mounted;

a second semiconductor package that is supported on the first semiconductor package such that ends of the second semiconductor are arranged above the semiconductor chip; and

a motherboard on which the second semiconductor package is mounted.

14. A method of manufacturing a semiconductor device, comprising the steps of:

mounting a first semiconductor chip on a first carrier substrate;

mounting a second semiconductor chip on a second carrier substrate;

forming a first protruding electrode on the second carrier substrate; and

bonding the first protruding electrode on the first carrier substrate such that ends of the second carrier substrate are arranged above the first semiconductor chip.

15. The method of manufacturing a semiconductor device according to claim 14, further comprising the steps of:

mounting a third semiconductor chip on a third carrier substrate;
forming a second protruding electrode on the third carrier substrate; and
bonding the second protruding electrode on the first carrier substrate
such that ends of the third carrier substrate are arranged above the first
semiconductor chip.

16. The method of manufacturing a semiconductor device according to claim 15, further comprising the step of injecting resin into at least one gap selected from the group including:

a gap between the second carrier substrate and the third carrier substrate;

a gap between the first carrier substrate and the second carrier substrate; and

a gap between the first carrier substrate and the third carrier substrate.

17. The method of manufacturing a semiconductor device according to claim 15, further comprising the steps of:

sealing the second carrier substrate in which the second semiconductor chip is mounted, with a first sealing agent;

sealing the third carrier substrate in which the third semiconductor chip is mounted, with a second sealing agent;

placing in contact the surface of the first sealing agent and the surface of the second sealing agent on a flat surface with the first sealing agent separated from the second sealing agent; and

filling the gap between the first sealing agent and the second sealing agent with resin by injecting the resin from a formation surface side of the first protruding electrode and the second protruding electrode.

18. A method of manufacturing an electronic device, comprising the steps of:

mounting a first electronic component on a first carrier substrate;

mounting a second electronic component on a second carrier substrate;

forming protruding electrodes on the second carrier substrate; and

bonding the protruding electrodes onto the first carrier substrate such that ends of the second carrier substrate are arranged above the first electronic component.